

ABSTRACT OF THE DISCLOSURE

A vacuum deposition system comprises i) a film-forming chamber the inside of which can be kept at a stated degree of vacuum by a film-forming chamber evacuation means such as a vacuum pump, having a substrate holder which holds a substrate on which a thin film is to be formed and a crucible which heats and evaporates a deposition material to be made into a thin film, and ii) a reaction chamber in the inside of which a gas is to be ionized, which is connected to a reaction chamber gas feed means which feeds a source gas for compensating gas atoms having come short; the film-forming chamber and the reaction chamber being connected through a pressure control means. The source gas fed by means of the reaction chamber gas feed means is previously ionized in the reaction chamber by the action of ionization attributable to the plasma, and thereafter the pressure control means is operated to introduce the ionized gas into the film-forming chamber.